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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/630,157 | 07/31/2000 | Christopher W. Gabrys | | 5434 |

27410 7590 06/07/2002

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542 SW 298TH STREET
FEDERAL WAY, WA 98023

EXAMINER

KIM, CHONG HWA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3682

DATE MAILED: 06/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/630,157

Applicant(s)

GABRYS ET AL.

Examiner

Chong H. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The Examiner acknowledges the applicant's Amendment filed May 10, 2002 in response to the Office action made on Feb 1, 2002.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-8 and 10-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims throughout recite the limitation wherein the rim liner grows radially with the rim. This growth is attributed by the specific characteristics of each material the rim and the rim liner utilize. Although the formulas for calculating the numerical values to compare each other are provided, the variables dealing with the characteristics of each material used are not provided in the specification. Without the exact composition of the material and its values such as modulus of elasticity or the density, making of the invention is very difficult to carry out. For instance, there are many different compositions of E-glass or carbon fiber/epoxy that can be produced. In order to make the best mode contemplated by the inventor of carrying out his invention, the specification must be described fully what those compositions are. Moreover,

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claim 14 recites that the rim liner has a strain-to-failure capability of greater than 4%. The specification does not support exactly how such percentage is produced.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7, 8, and 10-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "said rim" in line 10. There is insufficient antecedent basis for this limitation in the claim.

The term "maximum speed " in claim 7 is a relative term which renders the claim indefinite. The term "maximum speed" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not understood at which speed of the flywheel is considered "maximum".

The term "high speed " in claims 10, 13, 15, and 18 is a relative term which renders the claim indefinite. The term "high speed" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not understood at which speed of the flywheel is considered "high".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kundermann, U.S. Patent 6,302,800 B1.

Kundermann shows, in Fig. 13, a hub for a flywheel system, comprising;

a flywheel hub 33 having a radial splines 19;

a flywheel rim liner 23 having radial projections 20 mating with the splines 19 to form a torque transmitting coupling between the hub 33 and the liner 23 that maintains concentricity between the hub 33 and the rim liner 23;

the flywheel rim liner 23 made of a material having a strain-to-failure capability and a ratio R equal to E/ρ , wherein E is a hoop modulus of elasticity of the rim liner 23 and ρ is the density of the rim liner material;

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the rim liner 23 strain-to-failure capability and ratio R being such that the rim liner remains in compressive contact with a rim 3 from start to maximum speed of the flywheel system;

wherein hub splines 19 project radially outward and extend axially along the outside surface of the hub 33.

Response to Arguments

7. In response to the applicant's argument that the exact properties of the E-glass and the carbon fiber/epoxy is not needed since "the variables of the various available compositions of these materials differ from each other in ways that are insignificant in the context of the invention, and any variability in there properties is fully accounted for in the expressions that relate the mechanical properties of the materials", it is the Examiner's view that the exact properties of the materials used to make the present invention is required. The context of the invention is that the flywheel has two different materials which are in the compressive contact with each other during a "high speed" due to the differences in the properties of the materials. If the properties of the materials are insignificant, as the applicant has asserted, then why are the modulus of elasticity, the density, the rim ratio, the liner ratio, the Poisson's Ratio, and the strain-to-failure capability claimed? Furthermore, if the properties of the materials are insignificant, as the applicant has asserted, then how important or significant is the growth of the materials during the "high speed" in the invention? It appears that the growth of the materials are very important in the invention because the growth rate or the strength of the materials during the "high speed" determines how well the invention works. If so, then it appears that the

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properties of the materials used have a significant role in the invention. Moreover, the applicant argues that the manufacturer can ascertain from the disclosed and claimed expressions and apply such knowledge to make the flywheel. It is in the opinion of the Examiner that the manufacturers must have the exact specification as to how to produce such flywheel as shown in the present invention. Without such instructions, the manufacturers would require extensive research to find out exactly what kind of compositions the materials must possess in order to function properly as disclosed or expressed in the claim. If the applicant contends that such know-how exists without the extensive research by the manufacturing industry, then the applicant is invited to submit an evidence to show such claim.

8. In response to the applicant's explanation concerning the "strain-to-failure capability of greater than 4%", it is noted that the term "strain-to-failure capability" is understood in a "word-by-word" literal sense. However, is it not clear how the material is to possess the properties (or characteristics) that has the strain-to-failure capability of greater than 4%. The Examiner has understood the term "strain-to-failure capability" as having the ability to experience from strain to failure. Yet, the capability expressed in percentage is confusing. Are the term "strain-to-failure capability" and the method for calculating the percentage thereof normally used in the art of material science? If so, the applicant is requested to provide a literature or a reference that explains such term or the method.

9. In response to the applicant's argument that the term "high speed" is adequately defined in the specification, the Examiner disagrees. As provided by the applicant, the specification

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describes about the "high speed" being defined as the speed at which separation of the rim from the hub occur. However, such definition does not provide a standard for ascertaining the requisite speed. The applicant admitted that the term "high speed" would be different for different flywheel design. Is that mean a flywheel rotating at 500 rpm be considered to be "high speed" when there is a separation of the rim from the hub versus other flywheel which can rotate at 50,000 rpm without the separation? In the art of flywheels, 500 rpm is not considered to be "high speed". It is advised that the applicant delete the word "high" and insert -- a -- or -- the --.

10. In response to the applicant's argument that the characteristics of the rim liner as amended in claim 7 is not taught by Kundermann, it is the Examiner's position that Kundermann discloses such inherent characteristics. It is well known in the art of material science that any solid material has the characteristics of the modulus of elasticity, the density, and the "strain-to-failure capability" (which the Examiner understood the term as in a literal sense). Moreover, the two separate parts 23 and 3 are in compressive contact via the bolts 7 from start to maximum speed of the flywheel system.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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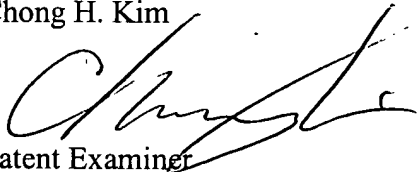
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (703) 305-0922. The examiner can normally be reached on Monday - Friday; 9:00 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Chong H. Kim



Patent Examiner

June 6, 2002